AP0024234

UR 0533

AUTHOR-- DUBNOV, L.

TITLE-- A UNIQUE "MICROCHAMBER"

NEWSPAPER-- SOTSIALISTICHESKAYA INDUSTRIYA, FEBRUARY 8, 1970, P 2, COL 8

ABSTRACT-- A TEAM OF SCIENTISTS AT THE INSTITUTE OF PHYSICS OF THE LATVIAN ACADEMY OF SCIENCES HAS DEVELOPED A METHOD FOR CREATING VACUUM COMPARABLE TO THAT FOUND IN SPACE. IT CONSISTS OF PULLING A LEAD-JACKETED STEEL SPECIMEN. DUE TO DIFFERENCE IN DUCTILITY, STEEL FRACTURES FIRST, WHILE LEAD CONTINUES TO STRETCH THUS CREATING A VERY DEEP VACUUM BETWEEN THE ENDS OF THE FRACTURED STEEL CORE.

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19650905

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- USSR

UDC: 669.71.41

YUDKIN, S. A., DUBODELOV, V. I.

"Influence of Technological Factors on the Process of Refining of Aluminum in Magnetodynamic Installations"

MGD v Metallurgii i Liteyn. Proiz-ve [MHD in Metallurgy and Foundry Production -- Collection of Works], Kiev, 1972, pp 30-35 (Translated from Referativnyy Zhurnal Metallurgiya, No 8, 1973, Abstract No 8G178, by G. Svodtseva).

Translation: There is interest in the use of electromagnetic installations of magnetodynamic type for the refining of Al and its alloys. The essence of the method is that active contact between metal and flux is provided by repeated continuous feed of melt under the influence of electromagnetic forces. Primary Al type A8 was refined with a triple flux (30% NaCl + 23% Ba_3AlF_6 + 47% KCl). The first series of experiments was designed to define an efficient flux state, the second -- to determine the optimal modes of circulation of the metal in the installation with injection of flux. The velocity of the stream causing the optimal movement of metal in the bath was 0.2 m/sec. The content of Al_2O_3

USSR

Yudkin, S. A., Dubodelov, V. I., MGD v Metallurgii i Liteyn. Proiz-ve, Kiev, 1972, pp 30-35.

in the optimal liquid flux refining mode was decreased by 4 to 5 times (from 0.05 to 0.0125-0.01%). During the next 40 minutes after completion of the active stage of the process of refining, the quantity of Al_2O_3 in the metal increased to 0.02-0.03%, then stayed at this level. The slight increase in Al_2O_3 content can be explained by separation of Al_2O_3 particles from the oxide film formed on the surface of the metal after removal of flux by the circulation streams of metal in the bath. 5 figures, 5 biblio. refs.

2/2

USSR

UDC: 669.715.046.54/55

YUDKIN, S. A., DUBODELOV, V. I., POLISHCHUK, V. P.

"Refining of Aluminum Alloys in Induction Channel Furnaces"

Moscow, Tsvetnyye Metally, No 8, Aug 73, pp 45-47.

Abstract: A system is developed for protection of the channel of induction furnaces from overgrowth. The optimal purification of aluminum alloys using active fluxes was observed at 720-730° C, with a flow rate of the stream at the nozzle of 0.22-0.25 mm/sec, using T-shaped fittings 0.30-0.32 m/sec.

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1/2 027 UNCLASSIFIED PROCESSING DATE--23OCT70

TITLE--EFFECT OF STRESS RELAXATION IN RUBBERS UNDER ATMOSPHERIC CONDITIONS ON THEIR OZONE CRACKING -U-

AUTHOR-(02)-ANGERT, L.G., DUBOK, N.N.

COUNTRY OF INFO--USSR

SOURCE--KAUCH. REZINA 1970, 29(3), 19-21

DATE PUBLISHED--------70

SUBJECT AREAS--MATERIALS

TOPIC TAGS--STRESS RELAXATION, OZONE, SYNTHETIC RUBBER, ATMOSPHERIC CONDITION, ELONGATION/(U)SKI3 SYNTHETIC RUBBER, (U)SKMS30AKM SYNTHETIC RUBBER

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--1997/0530 STEP NO--UR/0138/70/029/003/0019/0021

CIRC ACCESSION NO--AP0119449

UNCLASSIFIED

2/2 027 UNCLASSIFIED PROCESSING DATE--23OCT70
CIRC ACCESSION NO--AP0119449
ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE AV. RATE OF STRESS RELAXATION (SIGNA SUBT-SIGMA SUB0) OF SYNTHETIC RUBBERS (SKI-3, SKMS-30ARM, OR NAIRIT) IN THE NONSTATIONARY SIGMA SUBT-SIGMA SUB0 RANGE IS APPROX. 2 TIMES LARGER IN OPEN STORAGE THAN INSIDE A BUILDING. THE TIME TAKEN BY A SAMPLE UNDER CONST. STRESS TO CRACK (T) IS LOWER THAN UPSILON FOR SAMPLES UNDER CONST. ELONGATION (I.E. WHEN SIGMA SUBT-SIGMA SUB0 DECREASES); FOR SKI-3 THIS DIFFERENCE IS 60-67PERCENT. IT IS PROPOSED THAT THE SIGMA SUBT-SIGMA SUB0 DECREASE IMPROVES STABILITY OF RUBBER TOWARDS O SUB3 CRACKING. FACILITY: NAUCH.-ISSLED. INST. REZIN. PROM., MOSCOW, USSR.

UNCLASSIFIED

Acc. Nr. AP0045147 Abstracting Service: CHEMICAL ABST. 5-76 Ref. Code 21R0138

91306e **Change in the surface temperature of rubbers under atmospheric conditions.** Angert, L. G.; Dubok, N. N. (Nauch.-Issled. Inst. Rezin. Prom., Moscow, USSR). *Kauch. Rezina* 1970, 29(1), 22-5 (Russ). Black and white elastomers were tested in Moscow (moderate climate) during the month of July in order to evaluate the total daily variation in surface temp. and its dependence on meteorol. factors. Overheating of elastomers depended on (all other conditions being equal) the color of the surface, the solar radiation flux, and cloudiness of the sky. The surface temps. of black and white elastomers in sunlight were 25 and 16°, resp., above air temp. at noon. Two equations were derived for the calcn. of temp. changes on elastomer surfaces. The calcd. temps. were in good agreement with exptl. results. CKJR

REEL/FRAME
19780047

USSR

UDC: 621.791.1:669.3

KHRENOV, K.K., GURSKIY, P.I., and DUBOLAZOV, V.A., Institute of Electric Welding imeni Ye. O. Paton, Academy of Sciences Ukrainian SSR

"Cold Welding of Copper With Kovar in the Hermetic Sealing of Semiconductor Devices"

Kiev, Avtomaticheskaya Svarka, No 5, May 70, pp 51-53

Abstract: Investigations were conducted of the cold welding of copper with Kovar (54 Fe, 28 Ni, 18 Co) for the hermetic sealing of semiconductor devices. Semiconductor devices are hermetically sealed by cold lap welding with the circular joint of the hollow parts. In vibration and impact strength tests of semiconductor instruments, there were no cases of breakdown in welds performed by cold welding. In conformance with technological requirements, copper and Kovar parts are prepared for cold welding by nickel plating. Analysis of microsections of the joint showed that the coating plays a decisive role from the point of view of the container and the optimum is a ratio of coating to base metal thickness of 0.01:0.02. The coating on Kovar is subjected to etching, washing, and drying, which have no effect on cold welding quality, although coating thickness decreases sharply. Regardless of this, the nickel film preserves its stabilizing influence. In attempts to dispense with nickel plating, airtightness stability of the instruments dropped sharply. The hermetic sealing of semiconductor instruments, two deformation schemes are used: bilateral and unilateral. Bilateral deformation ensures

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APPROVED FOR RELEASE: 07/19/2001 CIA-RDP86-00513R002200710019-9"

USSR

KHRENOV, K.K., et al, Avtomaticheskaya Svarka, No 5, May 70, pp 51-53

the plastic flow of metals needed for obtaining airtight joints. Welding with unilateral deformation provides a better external appearance of the instruments, and increases the weld width and corrosion resistance of the joint.

USSR

DUBONOSOV, T. S., candidate of agricultural sciences, and PANARIN, I. V., candidate of biological sciences, Scientific Research Institute of Agriculture, Krasnodar

"Barley Streak Mosaic"

Moscow, Zashchita Rasteniy, No 1, 1973, p 49

Abstract: Following a recent survey which revealed a low incidence of barley streak mosaic in the acute form (loss of pigment, stunted growth, and lethal necrosis) in the Krasnodarskiy Kray, the properties of the virus were investigated. Extract from diseased barley infects winter and summer wheat and barley and a number of wild grains. The virus is also readily transmitted to seeds, though the vector is not known. The incubation period is 5-6 days in barley and wheat and 8-12 days in corn. The virus remains virulent in a dilution of the crude extract of 1:2000 and after storage at room temperature for 10 days and at 5°C for 30 days. It is inactivated at 68°C. In an electron microscope, the virus is seen as a rod-shaped particle. It is recommended to hold transport and sale of diseased seeds in order to prevent spread of the disease.

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Plant Pathology

USSR

UDC 633.11:632.38A/Ya

DUBOVOSOV, T. S., and PANARIN, I. V., Candidate of Biological Sciences, Candidate of Agricultural Sciences, Krasnodar Scientific Research Agricultural Institute

"A Method for Evaluating Winter Wheat Resistance to Viral Diseases"

Moscow, Selektsiya i Semenovodstvo, No 1, 1972, pp 13-14

Abstract: A method is suggested of creating a background of infection by planting very early winter wheat crops on a bare fallow field (from 15 to 25 August in the central region of Krasnodar Kray). Earlier crops in years unfavorable for overwintering die, while the September crops cannot be a significant source of infection. By the time the shoots of winter wheat planted at the optimum time appear, susceptible plants should be largely infected (50 to 80%) with the main viral diseases. The number of carriers of viral diseases (aphids, mites, leaf hoppers) on the early winter wheat crops is close to the maximum in October, thus ensuring transmission of viruses from diseased to healthy plants. The injury rate is determined before the ear formation stage. Thepercentage of affected plants and degree of injury are established from external signs for each disease separately on a four-point scale.

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USSR

UDC 632.4:633.11

DUBONOSOV, T. S., Candidate of Agricultural Sciences, and PANARIN, I. V., Senior Scientific Associate, Krasnodar Scientific Research Institute of Agricultural Sciences

"Resistance of Winter Wheat to Virus Diseases"

Moscow, Zashchita Rasteniy, No 2, 1971, pp 31-32

Abstract: More than one hundred samples of winter wheat were tested, including one type of foreign wheat and eight forms of wild wheat. Samples were tested for their resistance to wheat streak mosaic and wheat stunt viruses. The degree of infection of the samples was determined on a scale ranging from 1 (healthy) to 4 (shrinkage of leaves and destruction of the Plant).

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USSR

KOZHEVNIKOV, G. N., KUDINOV, B. Z., LEONT'YEV, L. I., DUBOTOLKOV, G. P., KISELEV, V. A.

UDC 669.71.033.4

"Effect of Composition and Cooling Rate of Aluminum-Calcium Slags on Alumina Extraction"

Tr. In-ta metallurgii. Ural'sk. fil. AN SSSR (Works of the Metallurgy Institute. Urals Branch of the USSR Academy of Sciences), 1970, vyp. 22, pp 41-45 (from RZh-Metallurgiya, No 4, Apr 71, Abstract No 4G130)

Translation: In order to obtain slags with high technological qualities it is necessary to realize the process of reduction of the initial raw material so that the slags will have the following characteristics: Si-modulus 1.5-3.0 and Ca-modulus 1.5-1.55. From these slags it is possible to extract more than 90% Al_2O_3 with soda leaching independently of the cooling rate of the slags. There are 4 illustrations and 2 tables.

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DUBOV, A.V.

MEDICINE

UDC 615.371:576.858.25

LIVE TICKBORNE ENCEPHALITIS VACCINE. I. REACTOGENICITY, SPECIFIC SAFETY AND EFFECTIVENESS

[Article by A. V. Dubov, T. S. Gorozhankina, et al., Tyumen' Research Institute of Infectious Pathology and Encephalitis Control Group, Ministry of Health, Moscow, Voprosy Virusologii, Russian, No 1, 1972, submitted 1 September 1970, pp 23-26]

In 1969 a live tickborne encephalitis vaccine was tested for the first time in the USSR in a controlled epidemiological trial. The preparation was found to produce few side effects and was safe for the entire adult population possessing basic immunity. It was quite effective when used in highly intensive foci of tickborne encephalitis.

The history of the struggle against infectious diseases has shown that live vaccines are highly effective against a number of viral diseases, e.g., smallpox, poliomyelitis, and yellow fever. A live tickborne encephalitis vaccine is now urgently needed because it is difficult to use inactivated cultural vaccine for large-scale immunization owing to the necessity for 3 inoculations and subsequent annual revaccinations [1, 9, 10, 11].

Live tickborne encephalitis vaccine was prepared from the Yelantsev strain of tickborne encephalitis virus that was isolated in 1964 in Tyumenskaya Oblast by A. V. Dubov and E. Z. Blidova from the blood of a healthy person who had removed from himself a sucking tick [5, 6, 17]. Experimental studies on the biological, antigenic, and immunogenic properties of this virus prepared the way for a trial of the safety, reactogenicity, and antigenic activity of the preparation in volunteers [7, 8, 17]. After examining the results of the trial, the Committee for Vaccines and Sera, USSR Ministry of Health, approved on 14 March 1969 the Temporary Interrepublic Technical Requirements (VKTU-42) for live tickborne encephalitis cultural vaccine from the Yelantsev strain and regulations for laboratory production. It also authorized a test of the preparation in an epidemiological trial.

Material and Procedure. The epidemiological trial was conducted in 1969 according to the World Health Organization standards [2-4, 13, 14, 16]

1/2 022 UNCLASSIFIED PROCESSING DATE--23OCT70

TITLE--DETERMINATION OF A MODIFER USED IN PRODUCING CELLOPHANE POLYETHYLENE FILM OF THE PTS 2 BRAND -U-

AUTHOR-(04)-POSTRIGAN, M.V., ISHEVSKIY, G.M., DUBOV, O.YE., GUL, V.YE.

COUNTRY OF INFO--USSR

SOURCE--IZV. VYSSH. UCHEB. ZAVED., PISHCH. TEKHNOL. 1970, (1), 168-9

DATE PUBLISHED--------70

SUBJECT AREAS--MATERIALS, BIOLOGICAL AND MEDICAL SCIENCES, MECH., IND., CIVIL AND MARINE ENGR

TOPIC TAGS--POLYETHYLENE, PLASTIC FILM, MELAMINE RESIN, FOOD CONTAINER, ADHESION, SPECIALIZED COATING, PACKAGING MATERIAL

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--1997/1020 STEP NO--UR/0322/70/000/001/0168/0169

CIRC ACCESSION NO--AT0119887

UNCLASSIFIED

2/2 022 UNCLASSIFIED

CIRC ACCESSION NO--AT0119887 PROCESSING DATE--23OCT7(

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. KJELDAHL N DETN. OF PTS 2 FILMS, MELAMINE FORMALDEHYDE RESIN (I) AND PTS 2 FILMS COATED WITH I PERMITTED DETN. OF THE AMT. OF I USED IN COATING WITH SIMILAR TO 10PERCENT ACCURACY. SUCH COATINGS IMPROVE THE ADHESION OF PTS 2 TO FRESH MEAT, FISH, ETC. AND THUS IMPROVED THE MOISTURE RETENTION BY THESE PRODUCTS WRAPPED IN THE COATED FILMS. FACILITY: MOSK. TEKHNOL. INST. MYAS. MOLOCH. PROM., MOSXOW, USSR.

UNCLASSIFIED

USSR

DUBOV, R. I.

"The Theory of the Search for Optimal Solutions"

Mat. Modeli v Geol. i Geostatistika [Mathematical Models in Geology and Geostatics -- Collection of Works], Moscow, Nauka Press, 1973, pp 14-28 (Translated from Referativnyy Zhurnal Kibernetika, No 9, 1973, Abstract No 9V194)

Translation: The statistical problem of pattern recognition on the basis of observations of random characteristics $\xi_1, \xi_2, \ldots, \xi_N$ of object of classification r is studied. It is assumed that a finite set of a priori possible classes is fixed, to which the object may relate. Suppose $r^*(\xi_1, \xi_2, \ldots, \xi_N)$ is the statistics of a given criterion. The optimal criterion is considered to be that criterion for which the quantity of information relative to random quantity are included in random quantity $r^*(\xi_1, \xi_2, \ldots, \xi_N)$ is maximal.

It is proven that no conversion of observed characteristics increases the quantity of information concerning the random quantity r which they contain. It is proven that of all criteria for testing several hypotheses, the best are criteria based on the principle of maximum likelihood.

1/1 G. Kalmykov

USSR

UDC: 539.192

LANDAU, M.A., SHELUCHENKO, V.V., DUBOV, S.S.

"Structure and Reactivity of Phosphorus Compounds With P=O Bond"

Moscow, Zhurnal Strukturnoy Khimii, Vol 11, No 3, 1970, pp 513-519

Abstract: Calculations were made of 25 molecules of organophosphorus compounds (OPC) of the (XYZ)PO type (where X, Y, Z - R, OR, SR, NR_2, and F) by the simple method of molecular orbitals. Results found afforded elucidation of several experimentally established details of the mechanism of OPC reactions with nucleophilic and electrophilic reagents. It was also found possible to compare quantitatively calculated energies of the lowermost unfilled orbital and nucleophilic superdelocalizabilities of the phosphorus atom with rate constants and energies of activation of alkaline hydrolysis of different fluoro-anhydrides of phosphorus acids. A quantitative relationship between the total of Taft inductive constants of substituents X, Y, and Z and the total energies of the pi-system of the OPC molecule was found. A relationship was established between the energy of resonance and the total bond orders of the OPC molecule, on the one hand, and the size of the chemical shift of the P31 nucleus in a nuclear magnetic resonance spectrum, on the other.

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1/2 021 UNCLASSIFIED PROCESSING DATE--11DEC70

TITLE--EFFECTS OF SULFUR AND NITROGEN ATOMS ON THE PROPERTIES OF A PHOSPHORYL BOND -U-

AUTHOR-(03)-STRUKOV, O.G., DUBOV, S.S., LANDAU, M.A.

COUNTRY OF INFO--USSR

SOURCE--ZH. STRUKT. KHIM. 1970, 11(1), 148-9

DATE PUBLISHED--------70

SUBJECT AREAS--CHEMISTRY

TOPIC TAGS--ORGANIC PHOSPHORUS COMPOUND, PHOSPHORUS SULFIDE, NITROGEN, OXYGEN, CHEMICAL BONDING

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--3008/1501 STEP NO--UR/0192/70/011/001/0148/0149

CIRC ACCESSION NO--AP0138502

UNCLASSIFIED

2/2 021 UNCLASSIFIED

CIRC ACCESSION NO--AP0138502 PROCESSING DATE--11DEC70

ABSTRACT/EXTRACT--(U) GP-0-- ABSTRACT. THE SHIFTS IN THE IR FREQUENCY OF THE P(O) BOND WERE TABULATED FOR SOLNS. OF (ETS) SUB3 PO, (BUS) SUB3 PO, (ME SUB2 N) SUB3 PO, AND (ET SUB2 N) SUB3 PO IN CCL SUB4 AND CDCL SUB3. WHILE THE BAND FREQUENCIES AND FORCE CONSTS. OF THE PO GROUPS IN THESE COMPDS. ARE SIMILAR TO EACH OTHER IN MAGNITUDE, THE MECHANISM OF TRANSMISSION OF ELECTRONIC EFFECTS FROM SUBSTITUENTS TO PO DIFFERS GREATLY DEPENDING ON THE LINKING ELEMENT. THE BAND INTENSITIES VARIED CONSIDERABLY BETWEEN THE ESTERS AND THE AMIDES. THE RESULTS SHOWED MUCH GREATER BASICITY OF THE PHOSPHORYL O ATOM IN THE AMIDES THAN IN THE ESTERS. THE RESULTS AGREE WITH LCAO CALCN. OF NEG. CHARGE ON THE O ATOM BEING MINUS 0.896 IN THE AMIDES AND MINUS 0.709 IN THE ESTERS, WHILE THE CHARGE ON THE N ATOM IS PLUS OR MINUS 0.187 AND THAT ON S IS MINUS 0.004.

UNCLASSIFIED

1/2 007 UNCLASSIFIED PROCESSING DATE--27NOV70

TITLE--COMPLEXES OF MALONONITRILE WITH CUPROUS CHLORIDE -U-

AUTHOR-(04)-SMIRNOV, S.K., STRUKOV, O.G., DUBOV, S.S., DANILINA, L.I.

COUNTRY OF INFO--USSR

SOURCE--ZH. NEORG. KHIM. 1970, 15(5), 1305-7

DATE PUBLISHED--------70

SUBJECT AREAS--CHEMISTRY, NUCLEAR SCIENCE AND TECHNOLOGY

TOPIC TAGS--COPPER COMPLEX, NITROGEN ISOTOPE, ORGANIC NITRILE COMPOUND

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--3007/0702 STEP NO--UR/0078/70/015/005/1305/1307

CIRC ACCESSION NO--AP0136141

UNCLASSIFIED

2/2 007 UNCLASSIFIED PROCESSING DATE--27NOV70
CIRC ACCESSION NO--AP0136141
ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. PREPN. AND STUDY OF NCCH SUB2 CN.CUCL, CUCL. PRIME15 NCCH SUB2 C PRIME15 N.CUCL, AND NCCH SUB2 C PRIME15 N.CUCL REVEALED THAT ON COORDINATION PRIME15 N IS A BETTER DONOR ATOM THAN PRIME14 N.

UNCLASSIFIED

USSR

UDC: 621.375.121:621.375.4

DUBOV, V. V.

"On Selecting Elements for the Bias Circuit in a Tunnel-Diode Amplifier"

Tr. 7-y Konferentsii po yadern. elektron. T. 2. Ch. 2 (Works of the Seventh Conference on Nuclear Electronics, Vol 2, Part 2), Moscow, Atomizdat, 1970, pp 80-94 (from RZh-Radiotekhnika, No 6, Jun 70, Abstract No 6D20)

Translation: The author analyzes the effect of frequency and other factors on selection of the elements of a bias circuit in a tunnel-diode amplifier. Bibliography of six titles. N. S.

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Dubov, Yu.S.

(2)

Selected Translations of Metallurgy JPRS 5861[illegible]
30 March 1973 - from Fizika Metallov i Metallovedeniye
Vol 34, #6, 1972

UDC 669.112.227.346:620.193.91

A STUDY OF STRAIN AGING OF MARTENSITE OF QUENCHED STEEL

Yu. S. Dubov and B. M. Mogutnov, Institute of Metallography and the Physics of Metals of the Central Scientific Research Institute of Ferrous Metallurgy imeni I. P. Bardin, submitted to press 1 February 1972

pages 1219-1223

Strain aging of high-carbon quenched (hardened) steels, caused by plastic deformation (strain) of martensite in which the processes of migration of the carbon to the defects formed in the martensite transformation was completed, was studied by the microcalorimetric method.

One of the initial processes of the decay of martensite in the tempering of hardened steel lies in the transition of the atoms of carbon to the imperfections of its crystalline structure, which were formed in the progress of the martensite transformation [1--6]. For the purpose of a further study of this process, in this work strain aging of martensite was investigated. The phenomenon indicated occurs when carbon not bonded with the imperfections of the crystal structure and "fresh" defects are contained in the martensite. Its occurrence was fixed according to the variation of the mechanical properties of the steel and the amplitude dependence of internal friction [7, 8].

The basic method of the investigation was the microcalorimetric method, which records the processes of migration of carbon to the defects well according to the quantity of heat liberated [5]. The materials for the investigation were high-carbon nickel steel 90N14 (0.94% C; 14.4% Ni) and chrome steel 80Kh13 (0.78% C; 12.8% Cr), in the martensite of which, after completion of the processes of the transition of the atoms of carbon to the defects formed in the progress of the martensite transformation, a considerable quantity of "free" carbon is contained. The heating of nickel steel before hardening was performed in a vacuum furnace at 1000°

with a soaking time of 10 minutes. The specimens of chrome steel were placed in double quartz evacuated ampoules and heated at 1200--1250° for 2.5--3.0 hours. After quenching in a cooled alkali solution, both steels preserved the austenite structure. The martensite was obtained in cooling of the specimens in liquid nitrogen.

In the study of strain aging it is necessary to exclude the processes of migration of carbon to the defects formed in the martensite transformation. It was demonstrated that at room temperature such processes end approximately after three days, although the most intensive occurrence is noted in the first 50--100 minutes of soaking [4, 5]. Therefore, to achieve a different degree of completion of the processes of migration of carbon to the defects of martensite transformation the specimens, after cooling in liquid nitrogen, were soaked at room temperature for various times, from 1 hour to 1 month. The concentration of carbon in the solid solution was varied by means of tempering the martensite with a duration of 1 hour in a range of 50--400°.

For the introduction of fresh defects, the specimens were subjected to plastic straining by compression (steel 40Kh13 by 10^{-3}) in liquid nitrogen. A special attachment made it possible to strain three specimens simultaneously, each having a diameter of 7 millimeters and a height of 10 millimeters.

The variations of the thermal effects of strain aging were performed at a negative temperature of -18°C, that is, in conditions when the processes of decay with the formation of carbide are known to be excluded. The methodology did not differ from the one described in reference [9].

In the measurement of the thermal effects in isothermic conditions, the specimens must be heated from the temperature of liquid nitrogen to the temperature of the calorimeter. In this case it is important that the heating be performed rapidly and that the temperature of the specimen not exceed -18°. A warming regime corresponding to the requirements indicated was selected in preliminary experiments.

The sequence of the performance of the experiments was as follows. Hardening and cooling in liquid nitrogen--soaking at room temperature or tempering--straining in liquid nitrogen--measurement of the thermal effect of aging. To exclude the possibility of an uncontrolled occurrence of the process of the migration of carbon to the defects before the beginning of the measurement, the specimens, after straining and after all other intermediate operations, were stored in liquid nitrogen. The quantity of

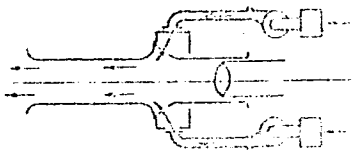
USSR UDC: 621.316.6

SIL'VESTROV, V. M., NOVOZHEZHKIN, V. P., TOMASHPOL'SKIY, N. F., DUBOVA, E. S., KISILEV, V. I.

"A Device for Protecting the Front Surface of Optical Systems"

Moscow, Otkrytiya, Izobreteniya, Promyshlennyye Obraztsy, Tovarnyye Znaki, No 6, Feb 72, Author's Certificate No 328411, Division G, filed 20 Aug 69, published 2 Feb 72, p 143

Translation: This Author's Certificate introduces a device for protecting the front of optical systems from atmospheric contaminants. The device contains a fitting which mates with the mount of the optical system and has a joint for feeding in compressed gas. As a distinguishing feature of the patent, in order to preserve image quality, the unit for feeding in gas is made in the form of a gas-collecting chamber with guide channels which goes into a blender nozzle.



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USSR

UDC 63:576.8

MUROMTSEV, G. S., DERZHINSKIY, A. R., KURAKHTANOVA, T. I., DUBOVAYA, L. P., and RUDAKOV, O. L., All Union Scientific Research Institute of Phytopathology, Bol'shiye Vyazemy, Moscow Oblast

"Deep Cultivation and Antibiotic Activity of the Mycoparasite Darluca filum"

Moscow, Sel'skokhozyaystvennaya Biologiya, Vol 5, No 4, 1970, pp 579-582

Abstract: When grown in deep culture, the imperfect fungus Darluca filum (Biv-Bern) Cast., a hyperparasite of rust fungi, can synthesize at least four intracellular fungicidal antibiotics. The fungus grows on solid and liquid media with certain combinations of nitrogen and carbon sources, the most favorable being those with soybean meal (or corn extract), and glucose starch. In deep culture, D. filum synthesizes antibiotics that suppress the growth of yeasts and mycelial fungi of the genera Alternaria, Beauveria, Botrytis, Cephalosporium, Cladosporium, Cryptococcus, Endothia, Fusarium, Gliocladium, Hansenula, Helminthosporium, Kabatiella, Monilia, Nematospora, Neurospora, Oospora, Penicillium, Pestalotia, Piricularia, Pichia, Pullularia, Rhizopus, Trichoderma, Verticillium, Torulaspora, Schwanniomyces, Debaryomyces, Endomyces, Candida, and Saccharomyces. Media containing glucose and peptone or

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APPROVED FOR RELEASE: 07/19/2001 CIA-RDP86-00513R002200710019-9"

USSR

MUROMTSEV, G. S., Sel'skokhozyaystvennaya Biologiya, Vol 5, No 4, 1970, pp 579-582

soybean meal, combined with various carbon sources, are best for synthesizing the antibiotics.

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USSR

UDC 543.7+535.379

DUBOVENKO, L. I., BOGOSLOVSKAYA, T. A.

"Relation between the Decomposition Rate of Hydrogen Peroxide and the Chemiluminescent Reaction in the Luminol-Mercury (II)-Hydrogen Peroxide System"

Kiev, Ukrainskiy Khimicheskiy Zhurnal, Vol XXXVIII, No 6, 1972, pp 617-620

Abstract: A study was made of the decomposition rate of a $6 \cdot 10^{-3}$ molar solution of H_2O_2 in the presence of mercury ions (II) and a mixture of it with luminol (L) in an alkaline medium for various pH and a temperature of 20°. The data obtained were compared with the kinetics of chemiluminescence and the duration of luminescence under identical conditions. The optimal pH conditions in the L-Hg (II)-H_2O_2 system coincide with the region of fastest decomposition of H_2O_2. Thus, one of the causes of extinguishing of luminescence is accelerated decomposition of the H_2O_2 in the presence of the mixture of Hg(II) with L. During the chemiluminescence process of the reaction, the Hg(II) is consumed first, being reduced to Hg(I). This also leads to extinguishing of the luminescence before oxidation of all of the luminol.

1/1

USSR UDC 535.379 + 543

DUBOVENKO, L. I., and DROKOV, V. G., Kiev State University Imeni T. G. Shevchenko, Chair of Analytical Chemistry

"Effect of Copper (II) on the Chemiluminescence Reaction of Lucigenine With Hydrogen Peroxide"

Ivanovo, Khimiya i Khimicheskaya Tekhnologiya, Vol 15, No 3, 1972, pp 344-347

Abstract: A study was carried out on the effect of copper (II) ions on chemiluminescence reaction of lucigenine with H_2O_2 in a wide range of base concentration from pH 10.5 to 3 N KOH. It has been determined that the effect of copper changes depending on the pH of the medium: at pH 12-13 copper (II) quenches the luminescence, while in the medium of 1-3 N KOH it intensifies it. The quenching effect is due to increased decomposition of H_2O_2. A possibility for qualitative determination of copper based on the inhibiting effect has been suggested, the sensitivity of the analysis being 0.03 g/2 ml of solution. Optimal conditions for this analysis are:

$$[Lc] \gg 1.5 \cdot 10^{-4}, \quad [H_2O_2] \gg 3 \cdot 10^{-3} \text{ mole/l, and pH 12.8.}$$

1/1

USSR

UDC: 621.373:530.145.6

DUBOVETS, V. G. and PRISHIVALKO, A. P.

"Radiation Polarization and Losses in Triangular and Square Annular Lasers With Two Discharge Tubes"

Elektron. tekhnika. Nauchno-tekhn. sb. Gazorazryadn. pribory (Electronic Engineering, Scientific-Technical Collection, Gas Discharge Devices) 1970, No. 3(19), pp 16-24 (from RZh-Radiotekhnika No. 3, March 71, Abstract No. 3D229)

Translation: An examination is made of the dependence of the radiation polarization azimuth γ_0 and the loss factor K_{los} of triangular and square annular lasers on the tube angle of rotation with respect to the longitudinal axis. Analytical expressions are obtained for the intensity of the output radiation and the losses as functions of the system parameters. K_{los} and γ_0 are computed and graphed for various resonator configurations and discharge tube placements. Resume

1/1

1/2 040 UNCLASSIFIED PROCESSING DATE--20NOV70

TITLE--STUDY OF THE POLARIZATION, FREQUENCY, AND RADIATION LOSSES OF AN ANNULAR LASER WITH AN ANISOTROPIC PLATE -U-

AUTHOR-(02)-DUBOVETS, V.G., PRISHIVALKO, A.P.

D

COUNTRY OF INFO--USSR

SOURCE--PRISHIVALKO, ZHURNAL PRIKLADNOI SPEKTROSKOPII, VOL. 12, APR. 1970, P. 647-652

DATE PUBLISHED--------70

SUBJECT AREAS--PHYSICS

TOPIC TAGS--LASER, LIGHT POLARIZATION, FREQUENCY CHARACTERISTIC, ENERGY SCATTERING

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--2000/1312 STEP NO--UR/0368/70/012/000/0647/0652

CIRC ACCESSION NO--AP0124963

UNCLASSIFIED

2/2 040 UNCLASSIFIED PROCESSING DATE--20NOV70

CIRC ACCESSION NO--AP0124963

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. DETERMINATION OF THE DEPENDENCE OF THE ENERGY, POLARIZATION, AND FREQUENCY CHARACTERISTICS OF ANNULAR LASERS ON THE PHASE SHIFT RESULTING FROM THE INTRODUCTION OF AN ANISTROPIC PLATE INTO THE SYSTEM, THE ORIENTATION OF THIS PLATE, AND THE ROTATION OF THE DISCHARGE TUBE RELATIVE TO THE LONGITUDINAL AXIS. THE DEPENDENCES OF THE LOSS COEFFICIENT AND THE POLARIZATION AND FREQUENCY CHARACTERISTICS ON THE PHASE DIFFERENCE, AS WELL AS THE ANGLES OF ROTATION OF THE PLATE AND THE TUBE WHEN PASSING IN CLOCKWISE AND COUNTERCLOCKWISE DIRECTIONS AROUND THE SYSTEM, ARE CONSIDERED FOR AN ANNULAR LASER WITH A DISCHARGE TUBE HERMETICALLY SEALED WITH BREWSTER WINDOWS AND AN ANISOTROPIC PLATE POSITIONED PERPENDICULAR TO THE LASER BEAM.

UNCLASSIFIED

USSR

UDC 778.37

DUBOVIK, A. S., SITSINSKAYA, N. M., and KONAKOVA, M. B., Institute of Physics of the Earth

"The SFR-Mikro High-Speed Microscopic Photography Camera"

Moscow, Zhurnal Nauchnoy i Prikladnoy Fotografii i Kinematografii, Vol 17, No 3, 1972, pp 174-177

Abstract: The Institute of Physics of the Earth has developed the SFR-Mikro camera on the basis of the series-produced Soviet SFR camera, by means of the introduction of minor changes in its optical system. The instrument can be used as a photographic recorder, with magnification of from 1 to 26X and as a time magnifier with a range of from 1 to 118X. The basic technical specifications are presented, among which is included the information that at a mirror rotation of 3000 to 7500 rpm the camera takes 25,000 to 625,000 frames per second using a two-row lens insert and high-speed lens insert, and 100,000 to 2,500,000 frames per second using a four-row lens insert; the frame diameter is 10 mm with a high-speed lens insert and a two-row lens insert, and it is 5 mm with a four-row lens insert. Optical diagrams of both variants are presented, as well as results of tests on a working model. 2 tables, 2 figures. 5 references.
1/1

USSR UDC 778.37

DUBOVIK, A. S., SIDOROV, S. N., and BARANOV, S. V., Institute of Earth Physics, Academy of Sciences, USSR

"The SFR-2MT High-Speed Photographic Installation With a Turbine Drive"

Moscow, Zhurnal Nauchnoy i Prikladnoy Fotografii i Kinematografii, No 1, 1971, pp 9-14

Abstract: In the investigation of high-temperature plasmas, laser radiation, explosive and other self-luminous processes that are measured by small time intervals of the order of 10^{-6} - 10^{-8} second, use is made of opticomechanical photographic instruments and installations with mirror scanning, which permit the phenomena to be recorded on a photographic film by means of a rotating mirror. Many such photographic installations have been developed in the Institute of Earth Sciences, Academy of Sciences, USSR.

One of these instruments is the SFR-2MT photographic installation with a turbine drive. The specifications of the instrument are given. This instrument is an adaptation of the presently series-produced SFR-24 high-speed photorecording installation. 7 figures, 8 bibliographic entries.

1/1

Photography

USSR UDC 778.37

DUBOVIK, A. S., and GRANIGG, A. B.

"Driven-Sweep Type Mirror Scanning in High-Speed Cameras"

Moscow, Zhurnal Nauchnoy i Prikladnoy Fotografii i Kinematografii, Vol 16, No 2, March-April 1971, pp 81-86

Abstract: Some driven-sweep type mirror scanning systems used in cameras operating both in the frame mode and the slit scanning mode are investigated in this paper. The general principles of driven-sweep mirror scanning used in high-speed cameras are investigated. Special attention is given to mirror scanning systems which permit maximum shooting speeds.

The following mirror scanning systems are described: systems constructed on the basis of plane-parallel mirrors and on the basis of mirror polyhedrons, systems located in one plane and in two and more planes, systems having two optical inlets and two, four and more working sections in which the investigated processes are recorded. Mathematical relations permitting calculation of the basic parameters of mirror scanning systems are presented, and the structural features, advantages and deficiencies of the described systems are discussed.

1/1

APPROVED FOR RELEASE: 07/19/2001 CIA-RDP86-00513R002200710019-9"

DUBOVIK, A.V.

III. SHOCK WAVES IN LIQUIDS

Andriankin, E. I., V. K. Bobolev, and A. V. Dubovik. Collapse of an elliptic cavity and explosive initiation in a liquid layer under shock effect. ZhPMTF, no. 5, 1971; 78-85.

Analytical and experimental results are given on the effect of shock excitation of a combustible liquid volume. Criteria are developed for the threshold conditions under which a nominally spherical fluid volume shifts to an elliptical form, and on further compression develops into a cumulative jet; in the limit this results in detonation from adiabatic heating of gas evolved in the volume. Test data on shock generation of jets in liquid nitroglycerine are included, and show qualitative agreement with theoretical results.

Shtessel', E. A., K. B. Pribytkova, and A. G. Merzhanov. A numerical solution to the problem of a thermal explosion with free convection taken into account. FGiV, no. 2, 1971, 167-178.

The authors cite previous works in which the effect of free convection on a gas explosion process is expressed in terms of the Rayleigh (Ra) and Frank-Kamenetsky (δ) criteria. The analysis is extended here to the case of liquid fuel combustion, and is presented as a supplement to earlier experimental work by Merzhanov and Shtessel' (FGiV, no. 1, 1971) in which an empirical correlation between Ra and δ was obtained. The model used assumes an ideal stationary fluid in a uniform semi-infinite vessel; gas evolution is neglected. The results are shown graphically, indicating the conditions under which convection will or will not affect the detonation process.

USSR

UDC: 662.215.1

DUBOVIK, A. V., GONCHAROV, A. A., and BOBOLEV, V. K., Moscow

"Approximate Physical Model of Low-Velocity Detonation in Liquids"

Novosibirsk, Fizika Goreniya i Vzryva, Vol 9, No 4, Jul-Aug 73, pp 521-529

Abstract: The authors study a single-dimensional problem associated with the propagation of a self-maintaining wave disturbance in a chemical reaction free, unbounded, two-phase medium (liquid with gas-filled bubbles) which is represented in the form of a set of interstratifications which are divided by gas intervals and oriented normally with respect to the propagation of the wave. The parameters of the indicated wave disturbance are calculated, taking into consideration the particulars of the impact compression of the bubbles. This is done using the hypothesis that the reaction can take place only between the intervals of the interstratifications. The analogy with low-velocity detonation is obvious from the studied physical picture of the process.

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USSR

UDC 662.217.7

ANDRIANKIN, E. I., BOBOLEV, V. K., DUBOVIK, A. V., Moscow

"Heating of a Liquid Explosive Layer under Impact"

Novosibirsk, Fizika goreniya i vzryva, Vol 8, No 3, 1972, pp 408-416

Abstract: A study was made more precisely to define the maximum temperature of a liquid explosive layer under impact. The kinetics of this phenomenon are explained and the experimental procedure and theoretical analysis are described.

The layer of investigated liquid was placed between two coaxial steel rollers 15 mm in diameter. A wire strain gage was wound on the lower roll. Impact was applied to the upper roll by a 5 kg weight at a rate of 1-2 m/sec. Oscillograms are presented for various impact rate demonstrating that the maximum pressure on impact p_{max} is very close to p_i forthe case of "idle" impact.

When calculating the maximum temperature in the liquid explosive layer under impact it is necessary to consider not only the thermal conductivity but also the relation between the viscosity of the liquid and the temperature. For standard laboratory experimental conditions, the calculated values of the maximum temperature were an order lower than for adiabatic warming and did not exceed the characteristic ignition point of nitroglycerine. Although the viscosity of the liquid explosive also depends on pressure, the maximum temperature is reached

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APPROVED FOR RELEASE: 07/19/2001 CIA-RDP86-00513R002200710019-9"

ANDRIANKIN, E. I., et al., Fizika goreniya i vzryva, Vol 8, No 3, 1972, pp 408-416

on the periphery of the striker where the pressure is close to normal. Therefore, consideration of the dependence of the viscosity on the pressure does not lead to a noticeable increase in the maximum temperature.

USSR

UDC:215.5+662.23

DUBOVIK, A. V., BOBOLEV, V. K., MALEGA, N. S., Moscow

"Influence of Configuration of Gas-Filled Cavities in Nitroglycerine Charges on its Shock Sensitivity"

Novosibirsk, Fizika Goreniya i Vzryva, No 3, 1971, pp 412-418.

Abstract: Recent works have presented detailed studies of the mechanism of excitation of an explosion, considering the sensitizing role of gas inclusions for shock initiation of liquid explosives. The primary role in the initiation of the explosion, according to the mechanism suggested in these studies, is that of the effects accompanying the interaction of accumulative stream of fluid with the wall of a collapsing cavity. It was demonstrated that if the parameters of collapse and the state of the gas in the cavity satisfy a number of necessary conditions, the rate of collision of the stream with the cavity for nitroglycerine required for excitation of the explosion is over 100 m/sec. This article presents a study of the collapse of gas-filled cavities of the simplest elliptical shape. When an elliptical cavity collapses, due to the presence of sectors with various degrees of curvature, the conditions of excitation of the stream are more favorable than in the cylindrical case. The sensitivity of the

USSR UDC: 215.5+662.23

DUBOVIK, A. V., BOBOLEV, V. K., MALEGA, N. S., Novosibirsk, Fizika Goreniya i Vzryva, No 3, 1971, pp 412-418.

nitroglycerine is determined as a function of the type of gas filling the cavity, placement of the cavity beneath impact hammer and the shape of the cavity.

2/2

USSR

UDC 532.595.2

ANDRIYANKIN, E. I., BOBOLEV, V. K., DUBOVIK, A. V., Moscow

"Collapse of an Elliptical Cavity and Excitation of an Explosion in a Layer of Liquid by an Impact"

Zhurnal Prikladnoy Mekhaniki i Tekhnicheskoy Fiziki, No 5, 1971, pp 78-85.

ABSTRACT: Experiments have shown that an initially circular bubble is slightly displaced or converted to an elliptical bubble during the process of collapse, further compression of which causes the appearance of cumulative streams. This process if of interest for the study of the wear of surfaces in a cavitating stream and in the analysis of the sensitivity of liquid explosives to impacts. The development of cumulation can be conveniently studied by making the cavity elliptical in advance or by displacing a circular cavity relative to the axis of impact, thus creating a pressure field asymmetrical relative to its center. This work presents some theoretical considerations on the nature of the cumulative stream which develops in an elliptical or displaced cavity and its influence on the excitation of explosion of liquid explosives due to the formation of small drops in the adiabatically heated gas within the cavity. The experimental data on the time of formation of streams and the frequency of explosions of nitroglycerin qualitatively confirm the theoretical statements.

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USSR

ANDRIANKIN, E. I., BOBOLEV, V. K., and DUBOVIK, A. V. (Moscow)

"The Collapse of a Cylindrical Cavity in a Layer of Liquid Upon Impact"

Moscow, Zhurnal Prikladnoy Makhaniki i Tekhnicheskoy Fiziki, No 6, 1970, pp 98-106

Abstract: The article deals with the case of an impact upon a thin annular layer of liquid with a gas-filled cavity.

The solution of the problem is reduced to the integration of a system of two conventional first-order differential equations. A qualitative analysis of the equations is carried out, and some precise solutions are found. Note is taken of cases of pulsation of the cavity, the influence of counterpressure and viscosity is investigated. The obtained experimental data coincide with the numerical calculations conducted in the paper.

The problem of the collapse of a cavity liquid is one of the fundamental problems of hydrodynamics. It is not only of theoretical but also of practical interest, since the collapse of cavities takes place frequently in the lubrication layer of bearings, in cavitation, in testing of the

USSR

ANDRIANKIN, E. I., et al., Zhurnal Prikladnoy Makhaniki i Tekhnicheskoy Fiziki, No 6, 1970, pp 98-106

sensitivity of liquid explosions to impact, etc. The analysis of these questions is dealt with by a number of papers in which the collapse of a spherical cavity is investigated. The present paper deals rather with the case of an impact with a velocity of w_o upon an angular layer of liquid with a thickness of h_o with an external radius a and an internal radius b. The solution of this problem is somewhat more complex than in the case of the collapse of a spherical bubble due to the presence of the axial component of velocity, the finite value of the striker radius a, and the layer thickness, which is variable with respect to time.

2/2

1/2 048 UNCLASSIFIED PROCESSING DATE--20NOV70

TITLE--CUMULATIVE JETS ARISING DURING SHOCK INDUCED COLLAPSE OF CAVITIES IN THIN FLUID LAYERS -U-

AUTHOR-(02)-BUBOLEV, V.K., DUBOVIK, A.V.

COUNTRY OF INFO--USSR

SOURCE--PMTF, ZHURNAL PRIKLADNOI MEKHANIKI I TEKHNICHESKOI FIZIKI, MAR.-APR. 1970, P. 148-151

DATE PUBLISHED-------70

SUBJECT AREAS--PHYSICS

TOPIC TAGS--GAS JET, SHOCK WAVE, FLUID FLOW

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--3005/1401 STEP NO--UR/0207/70/000/000/0148/0151

CIRC ACCESSION NO--AP0133353

UNCLASSIFIED

2/2 048 UNCLASSIFIED PROCESSING DATE--20NOV70

CIRC ACCESSION NO--AP0133353

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. RESULTS OF A HIGH SPEED MOTION PICTURE PHOTOGRAPHY STUDY OF THE DYNAMICS OF SHOCK INDUCED COLLAPSE OF AIR CAVITIES IN THIN LAYERS OF VARIOUS FLUIDS. IT IS FOUND THAT DURING THE COURSE OF COLLAPSE THE CIRCULAR SHAPE OF THE CAVITY SURFACE IS ARBITRARILY IMPAIRED, AND HIGH VELOCITY CUMULATIVE JETS ARISE. THE JET PARAMETERS ARE MEASURED AS A FUNCTION OF THE INITIAL CONDITIONS OF THE EXPERIMENTS.

UNCLASSIFIED

USSR

UDC: 532

DUBOVIK, M. F., MARTYNOV, V. P.

"Investigation of the Electrical Properties of Barium-Strontium Niobate"

V sb. Monokristally i tekhnika (Single Crystals and Technology--collection of works), vyp. 5, Khar'kov, 1971, pp 190-192 (from RZh-Fizika, No 6, Jun 72, Abstract No 6Ye132)

Translation: The electrical properties of $Ba_xCr_{1-x}Nb_2O_6$ are studied in the solid and liquid state. Experimental curves are plotted for the electrical conductivity and thermoelectromotive force as functions of temperature. Authors' abstract.

1/1

USSR

UDC 669.162.212

SAMSONOV, G. V., YEROSHENKO, A. I., OSTROVERKHOV, V. I., KRAT, V. A., and DUBOVIK, T. V., Institute of Problems of Material Science, Academy of Sciences Ukr SSR and Brovary Powder Metallurgy Plant

Kiev, Poroshkovaya Metallurgiya, No 12, Dec 72, pp 46-48

Abstract: The technology for production of large-scale parts from boron carbonitride with a diameter of 100-300 mm has been developed jointly by the Department of Refractory Materials at the Institute of Problems of Material Science and the Brovary Powder Metallurgy Plant. The following maximum and minimum values of the different properties are presented:

Electrical resistance, ohm-cm at 20°C	10^{13}
at 2000°C	2×10^{4}
Coefficient of thermal conductivity, v/m, at 300°C	27.0
at 2000°C	9.8
Coefficient of thermal expansion, deg^{-1}, at 20-300°C	0.77×10^{-6}
at 1000-2000°C	4.5×10^{-6}
Dielectric permeability at λ = 4.6 cm, at 20°C	1.9-2.1
Tangent angle of dielectric loss at λ = 4.6 cm, at 20°C	0.017-0.14

USSR

SAMSONOV, G. V., et al., Poroshkovaya Metallurgiya, No 12, Dec 72, pp 46-48

Vaporization rate, g/cm^2-sec	at 1515°C	6.78×10^{-9}
	at 1927°C	4.43×10^{-6}
Compressive strength, kg/mm^2,	at 20°C	1.59
	at 2020°C	4.75
Bend strength, kg/mm^2, at 20°C		1.80
Modulus of normal elasticity, kg/cm^2,	at 20°C	138300
	at 1800°C	122500

The physical and engineering properties of boron carbonitride allow it to be recommended for use as refractory and electrical insulation material for crucibles, vats, pipe for transfer of molten metals, alloys slags and salts, jackets for thermocouples, refractory lining plates and high-temperature electrical insulators at temperatures up to 2000-2500°C. One table, 5 bibliographic references.

2/2

USSR

UDC 621.762:669.018.5(088.8)

SAMSONOV, G. V., DUBOVIK, T. V., KUTSENOK, T. G., KRYLOV, V. D., TIKHONOVA, V. F.

"Cermet Material"

USSR Author's Certificate No 309967, filed 24 Mar 70, published 29 Sep 71 (from RZh--Metallurgiya, No 4, Apr 72, Abstract No 4G420P)

Translation: A cermet material based on Al nitride is proposed for the manufacture of ignitron igniters of welding machines and converters. In order to decrease the ignition power and stabilize the electric parameters, 35-70% TiC is introduced into the material.

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Coatings

USSR

UDC: 666.764.4:621.7.029

MASHNITSKIY, A. A., ANDREYEVA, T. V. and DUBOVIK, T. V., Institute of Problems of Material Science, Academy of Sciences Ukrainian SSR

"High-Temperature Protective Coatings on Graphite"

Moscow, Ogneupory, No 11, 1971, pp 41-44

Abstract: Discussed in this study are conditions for producing high-temperature protective boron-nitride coatings on graphite parts with a view to increase their corrosion resistance. The process of making technical-grade boron nitride is detailed. Cited are various boron nitride-base compositions, including their x-ray diffraction, chemical and metallographic analyses as well as resistivities. The technology of applying boron nitride coatings by the method of nitriding graphite parts in a mixture comprising 80% H_3BO_3, 15% BN and 5% carbon black in a tubular graphite resistance furnace with 90-mm (diam.) heaters and a mixture of 50% H_3BO_3 and 50% BN in a furnace with a 150-mm diam. heater is described. The mechanism of formation of coatings is discussed. Service tests indicate the potential uses of graphite with boron nitride coatings in the fusion of semiconductor materials, including silicon, germanium and alloys of both. (2 illustrations, 1 table, 2 bibliographic references).

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APPROVED FOR RELEASE: 07/19/2001 CIA-RDP86-00513R002200710019-9"

USSR

UDC 621.387.233

SAMSONOV, G.V., [illegible], KUTSENOK, T.G., TIKHONOVA, V.F., ANTONKHIN, R.G. [In-t problem materialovedeniya AN SSSR--Institute Of The Problems Of Material Study, AS, USSR]

"Material For Production Of Semiconductor Igniters For Ionic Rectifiers"

USSR Author's Certificate No 274240, filed 9 June 69, published 24 Sept 70 (from RZh--Elektronika i yeye primeneniye, No 3, March 1971, Abstract No 3A185)

Translation: Igniters for ionic rectifiers [ventil'], produced from a material, in the composition of which boron nitride and boron carbide enter, have a high ignition power and unstable parameters of current and voltage in the operating procedure. With the object of an increase of the stability of the parameters and a decrease of the ignition power, it is proposed to introduce niobium oxide into the material of the igniters, while the components mentioned above are taken in the following percentage ratio: boron nitride, 40-60; boron carbide, 20-40; and niobium oxide, 10-30. The method of manufacturing the igniters from the proposed materials involves hot pressing of a mixture of boron carbide, boron nitride, and niobium oxide powders in graphite molds at T = 1900--2000° C, pressure 20 kg/cm^2, and exposure time 2 min. The characteristics of the igniters are presented. V.M.
1/1

1/4 050 UNCLASSIFIED PROCESSING DATE--04DEC70
TITLE--METHODS OF OBTAINING NITRIDES, THEIR PROPERTIES, AND AREAS OF APPLICATION -U-
AUTHOR--DUBOVIK, T.V.

COUNTRY OF INFO--USSR

SOURCE--MOSCOW, VESTNIK, AKADEMII NAUK SSSR, RUSSIAN, VOL 40, NO 5, MAY 1970, PP 115-116
DATE PUBLISHED----MAY70

SUBJECT AREAS--MATERIALS, BEHAVIORAL AND SOCIAL SCIENCES

TOPIC TAGS--ZIRCONIUM COMPOUND, REFRACTORY COMPOUND, BORON NITRIDE, TITANIUM COMPOUND, VANADIUM COMPOUND, NIOBIUM COMPOUND, ZIRCONIUM NITRIDE, METALLURGIC CONFERENCE, TRANSITION METAL, SUPERCONDUCTIVITY, METAL FILM, METAL COATING, RARE EARTH METAL

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY FICHE NO----FD70/605011/E01 STEP NO--UR/0030/70/040/005/0115/0116

CIRC ACCESSION NO--AT0140211

UNCLASSIFIED

2/4 050 UNCLASSIFIED

CIRC ACCESSION NO--AT0140211 PROCESSING DATE--04DEC70

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE SECOND ALL UNION SCIENTIFIC SEMINAR ON METHODS OF OBTAINING NITRIDES, THEIR PROPERTIES, AND AREAS OF APPLICATION WAS HELD IN KIEV FROM 22 TO 26 DECEMBER 1969. PARTIFIPATING IN IT WERE OVER 200 REPRESENTATIVES OF 95 ACADEMIC AND BRANCH INSTITUTES AND INDUSTRIAL ENTERPRISES. THERE WERE THREE WORKING SECTIONS: METHODS OF OBTAINING NITRIDE POWDERS, METHODS OF OBTAINING ARTICLES AND COATINGS OF NITRIDES, AND PHYSICOCHEMICAL PROPERTIES AND NITRIDES. ONE HUNDRED AND NINE REPORTS WERE HEARD AND THERE WAS A BROAD DISCUSSION. OPENING THE SEMINAR, THE DIRECTOR OF THE INSTITUTE OF PROBLEMS OF THE STUDY OF MATERIALS OF THE AS UKRAINIAN SSR, I. N. FRANTSEVICH, IN HIS INTRODUCTORY SPEECH SHED LIGHT ON THE DEVELOPMENT OF SCIENTIFIC RESEARCH WORK IN THE AREAS OF METAL LIKE AND NONMETALLIC NITRIDES. FOUR REPORTS WERE PRESENTED AT THE PLENARY SESSION, ON THE CHEMICAL BOND AND THE CLASSIFICATION OF NITRIDES (G. V. SAMSONOV, KIEV), ON THE ELECTRONIC STRUCTURE AND CERTAIN PHYSICAL PROPERTIES OF NITRIDES OF TRANSITION METALS (V. S. NESHPOR, LENINGRAD), ON NONMETALLIC NITRIDES (T. V. DUBOVIK, KIEV), AND ON METHODS OF OBTAINING AND THE CHEMICAL PROPERTIES OF NITRIDES (M. O. LYUTAYA, KIEV). ALSO HEARD WAS A REPORT ON THE WORK OF THE STATE STANDARD AND REFERENCE DATA SERVICE AND ON THE PROCEDURE IN PRESENTING TO THE CENTER OF THAT SERVICE INFORMATION ON THE PHYSICAL AND CHEMICAL PROPERTIES OF NITRIDES (T. N. KAZANTSEVA, MOSCOW). THE REPORTS IN THE FIRST SECTION WERE DEVOTED TO DIFFERENT METHODS OF OBTAINING NITRIDES, INCLUDING SYNTHESIS IN AN ELECTRIC ARC, THE METHOD OF VAPOR PHASE PRECIPITATION, AND ALSO FROM SOLUTION FUSIONS.

UNCLASSIFIED

3/4 050 UNCLASSIFIED PROCESSING DATE--04DEC70

CIRC ACCESSION NO--AT0140211

ABSTRACT/EXTRACT--IN A NUMBER OF REPORTS THE KINETICS OF NITRIDING AND THE MECHANISM OF THE PASSAGE OF REACTIONS OF NITRIDE FORMATION WERE DISCUSSED. IN THE THIRD SECTION REPORTS WERE HEARD ON THE ELECTRONIC STRUCTURE, THERMODYNAMIC AND PHYSICAL PROPERTIES OF METAL LIKE AND NONMETALLIC NITRIDES. IN THEM THERE WERE DISCUSSIONS OF QUESTIONS OF X RAY SPECTRAL INVESTIGATION OF THE DISTRIBUTION OF ELECTRODE STATES IN NITRIDES OF TRANSITION METALS, OF THE RESULTS OF STUDY OF THE ELECTROPHYSICAL AND THERMOPHYSICAL PROPERTIES OF NITRIDES OF TRANSITION METALS AS A FUNCTION OF TEMPERATURE AND PROPERTIES, AND ALSO OF THE RESULTS OF MAGNETIC CHEMICAL INVESTIGATIONS OF THE ELECTRONIC STRUCTURE OF BORON NITRIDE. THERE WERE REPORTS ON THE ELECTROPHYSICAL PROPERTIES (ESPECIALLY THE SUPERCONDUCTIVITY) OF SINGLE CRYSTALS OF ZIRCONIUM NITRIDE AND ON THE INFLUENCE OF THE DEGREE OF PERFECTION OF THE CRYSTALS ON THOSE PROPERTIES. THE REPORTS DEALT WITH QUESTIONS OF THE RADIATION RESISTANCE OF NONMETALLIC NITRIDES OF BORON AND ALUMINUM AND OF THE INFLUENCE OF IONIZING RADIATION ON THE STRUCTURE AND PROPERTIES OF THOSE NITRIDES. A LARGE GROUP OF REPORTS WAS DEVOTED TO QUESTIONS OF THE CRYSTAL CHEMISTRY OF THE HEXAGONAL AND CUBIC MODIFICATIONS OF BORON NITRIDE, THE CHARACTER OF THE PHASE TRANSFORMATION OF BORON NITRIDE AT HIGH TEMPERATURES AND PRESSURES, AND TO CALCULATIONS OF THE ENERGY BANDS IN NITRIDES OF BORON AND NITRIDES OF TITANIUM, ZIRCONIUM, VANADIUM AND NIOBIUM.

UNCLASSIFIED

4/4 050 UNCLASSIFIED PROCESSING DATE--04DEC70

CIRC ACCESSION NO--AT0140211

ABSTRACT/EXTRACT--DATA WERE PRESENTED ON THE CHEMICAL PROPERTIES OF NITRIDES OF THE TRANSITION AND RARE EARTH METALS AND ALSO OF ALUMINUM NITRIDE (SOLUBILITY IN WATER, ACIDS, AND ALKALIES, AND OXIDIZABILITY), AND THE THERMODYNAMIC PROPERTIES OF NITRIDES (THE CHARACTER OF THEIR EVAPORATION AT HIGH TEMPERATURES AND THE CALCULATION OF ENTROPY), AND OTHER QUESTIONS WERE DISCUSSED. IN THE RESOLUTION ADOPTED BY THE PARTICIPANTS IN THE SEMINAR THERE WAS EMPHASIS OF THE NEED FOR THE TIMELY PRESENTATION OF THE APPROPRIATE INFORMATION TO THE CENTER OF THE STATE SERVICE OF STANDARD AND REFERENCE DATA ON THE PHYSICAL AND CHEMICAL PROPERTIES OF NITRIDES. THE PARTICIPANTS IN THE SEMINAR APPEALED TO THE MINISTRY OF CHEMICAL INDUSTRY USSR TO ADOPT MEASURES ON ORGANIZATION OF THE OUTPUT OF BORAZIN B SUB3 N SUB3 H SUB6 (THE STARTING MATERIAL FOR THE PRODUCTION OF HIGH QUALITY AMORPHOUS BORON NITRIDE AND ALSO OF COATINGS AND FILMS BASED ON IT).

UNCLASSIFIED

USSR

DUBOVIK, T. V.

"Second All-Union Scientific Seminar on Methods of Production, Properties and Areas of Application of Nitrides"

Kiev, Poroshkovaya Metallurgiya, No 5, May 70, pp 106-107

Abstract: The Second All-Union Seminar on Nitrides, organized by the Institute of Problems of Material Sciences Academy of Sciences Ukrainian SSR and the Kiev House of Scientific and Technical Propaganda, was held on 22-26 December 1969. The seminar was divided into three sections; methods for producing nitride powders; methods for obtaining nitride coatings and products; and physicochemical properties of nitrides. More than 200 representatives from 95 scientific research and industrial enterprises heard 109 reports and participated in the discussion and exchange of ideas and opinions on results of technological, experimental, and theoretical investigations.

The first section of the seminar -- on methods for obtaining nitride powders -- heard 30 reports dealing with electric arc synthesis methods, the vapor-phase precipitation method, and ways of obtaining nitrides from melt solutions. Reports of a theoretical nature devoted to nitration kinetics and mechanism of nitride formation reactions were also presented. The second section heard 40 reports on

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APPROVED FOR RELEASE: 07/19/2001 CIA-RDP86-00513R002200710019-9"

USSR

DUBOVIK, T. V., Poroshkovaya Metallurgiya, No 5, May 70, pp 106-107

three themes: theoretical and technological aspects of producing nitride items; development of the technology and study of the properties of thermodiffusion nitride coatings on metals and steel; production and properties of thin nitride films for the needs of microelectronics. The third section -- on physicochemical properties of nitrides -- heard 34 reports on the electronic structure and thermodynamic and physical properties of metallic and nonmetallic nitrides. The papers presented at the seminar will be published in a special collection of works.

2/2

USSR

UDC 532.517.2:536.25

BRDLIK, P. M., DUBOVIK, V. I., MOLCHADSKIY, I. S., Moscow

"Heat and Mass Transfer with Natural Convection on a Vertical Porous Surface During Injection of Carbon Dioxide Into Air"

Zhurnal Prikladnoy Mekhaniki i Tekhnicheskoy Fiziki, No 6, 1971, pp 122-125.

ABSTRACT: Results are presented from the numerical calculation of a laminar boundary layer with free convection of a binary mixture of carbon dioxide and air at a vertical heated surface. A comparison is presented of the numerical solution with an approximate analytic solution and experimental results.

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USSR

DUBOVIK, Ye. A.

"Optimal Digital Control of Collection and Transmission of Information in ACS"

Inform. Metody v Sistemakh Upr. Izmereniy i Kontrolya. T. 1 [Information Methods in Systems for the Control of Measurements and Testing. Vol 1], Vladivostok, 1972, pp 447-457 (Translated from Referativnyy Zhurnal Kibernetika, No 9, 1973, Abstract No 9V703).

Translation: The task of synthesis of digital control of the collection and transmission of information with limited communications channels in measurement-information systems (MIS) is studied. The optimality criterion (measure of the value provided by a fixed quantity of MIS information) used is the summary mean square error of representation (approximation) of all random processes measured by the MIS, the minimum of which is achieved by optimal control of the collection and transmission of information, minimizing the mean square error of appoximation of each random process. In solving the problem of optimization, the particular and general cases are studied. In the particular case, information is known concerning the dynamics of the random

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USSR

Dubovik, Ye. A., Inform. Metody v Sistemakh Upr. Izmereniy i Kontrolya. T. 1, Vladivostok, 1972, pp 447-457.

processes measured by the MIS. In the general case, this information is not available. It is noted in the conclusions that: 1) the optimal method of digital control yields a significant savings of communication channel capacity by taking advantage of the redundancy of the information flow in the MIS; 2) the gain in accuracy of representation and in communications channel transmission band will be greater, the greater the separation between the spectra of the process measured by the MIS and random processes; 3) the measure allows univeral series-produced digital computers to be used as MIS, avoiding the need for significant expenditures related to the processing of redundant information.

V. Mikheyev

USSR UDC: 519.2

DUBOVITSKAYA, I. M., KAZARIN, I. G.

"Some Problems in the Planning of Active Experiments"

Uch. zap. Tratus. un-ta (Scientific Notes of Tartu University, 1972, vyp. 292, pp 118-134 (from RZh-Kibernetika, No 8, Aug 72, Abstract No 8V192)

Translation: The paper deals with description of a response surface by means of a linear model and second order equations. If the results of an experiment cannot be adequately described by a linear model, then a quadratic approximation should be used for an exact description of the surface. Descriptions are given of such planning schemes as the complete factor experiment, the fractional factor experiment, and central compositional planning. Authors' abstract.

1/1

USSR

UDC 669-172:539.2

DUBOVITSKAYA, N. P., and LARIKOV, L. N.

"Study of Substructure of Single Crystals of Molybdenum Deformed in Various Crystallographic Planes"

Monokristally Tugoplavkikh i Redkikh Metallov [Single Crystals of Refractory and Rare Metals -- Collection of Works], Nauka Press, 1971, pp 129-135

Translation: Electron microscope and x-ray methods were used to study the substructure of molybdenum single crystals oriented in the {100} and {110} planes and deformed to 15-80% by rolling in the <110> and <100> directions. The change in substructure and microhardness was studied during isothermal annealing. It was established that the crystallographic deformation conditions significantly influence the nature of the dislocation substructure not only following plastic deformation, but also with subsequent heating, thus determining the type of softening process. Under conditions of slight hardening (<110> {100} $\varepsilon \approx 80\%$), the single crystal is retained following deformation and extended heating, leading to recovery of the mechanical properties. In the case of deformation of less than 30% with strong hardening (<110> {110} the single crystal is retained, while during annealing polygonization is developed, leading to recovery of mechanical properties.

APPROVED FOR RELEASE: 07/19/2001 CIA-RDP86-00513R002200710019-9"

USSR

DUBOVITSKAYA, N. P., and LARIKOV, L. N., Monokristally Tugoplavkikh i Redkikh Metallov [Single Crystals of Refractory and Rare Metals -- Collection of Works], Nauka Press, 1971, pp 129-135

With a greater degree of deformation (<110> {110} $\varepsilon \sim 80\%$), the single crystal ceases to be a single crystal in the process of deformation. Softening occurs as a result of development not only of polygonization, but of recrystallization as well. 5 Figures; 9 Bibliographic References.

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USSR UDC 669.017.548.53.620.187

DUBOVITSKAYA, N.V., and LARIKOV, L. N., Institute of Metal Physics, Academy of Sciences UkrSSR

"Investigation of the Processes of Polygonization and Recrystallization in an Iron-Chromium Alloy"

Kiev, Metallofizika, No 31, 1970, pp 48-59

Translation: Softening processes in the alloy Fe + 8.25% Cr + 0.05% C, in which the equivalent level of softening was attained by deformation (ε ≈ 70%) and hardening, are investigated by the method of diffraction electron microscopy. To determine the nature of the effect of Cr and of a small admixture of C, part of the study was done on the alloy Fe + 0.03% C and Fe cleaned by the zone method. To study the kinetics of polygonization, statistical curves of distribution of subgrains according to sizes and disorientation were plotted. It turned out that, as the time of isothermal annealing is increased, there is an increase in the maximum size of subgrains disoriented more than 18, which is described by a linear dependence both for a deformed and hardened alloy. At the same time, there is also some increase in the angle of disorientation of adjacent subgrains. A comparison of experimental data with

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APPROVED FOR RELEASE: 07/19/2001 CIA-RDP86-00513R002200710019-9"

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DUBOVITSKAYA, N. V., and LARIKOV, L. N., Metallofizika, No 31, 1970, pp 48-59

the existing theoretical concepts of the mechanism of growth of subgrains showed that the growth of subgrains with the maximum size and angle of disorientation ($\theta > 1^0$) occurred primarily according to the mechanism of transfer of sub-boundaries. Subgrains with a disorientation of less than 1^0 grow through coalescence. An inhibiting effect of carbon on the formation and growth of subgrains was established. The effect of chromium is of a more complicated nature. The change in the maximum size of recrystallization centers during the isothermal annealing is of a linear nature both for the deformed and hardened alloy. However, in the hardened alloy, in contrast to the deformed alloy, there is a certain latent period corresponding to the time of growth of subgrains with maximum sizes until a disorientation of more than 20^0 is attained. In the deformed alloy there is another, more rapid mechanism of formation of centers, perhaps through successive thermal fluctuations. Carbon and chromium greatly affect the rate of growth of recrystallization centers, slowing it down.

Bibliography: 33 entries, 15 illustrations, 2 tables.

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USSR

DUBOVITSKAYA, R. K., KULAKOVSKAYA, V. P., ROMANOVSKAYA, L. M., SAVCHENKO, T. A., STOLYAROV, G. K., FEDOROV, A. T., FEL'DMAN, L. S.

Sistema Avtomaticheskoy Obrabotki Dannykh na Baze Yazyka KOBOL (Automated Data Processing System Based on COBOL), Moscow, Statistika Press, 1971, 280 pp

Translation of Foreword [pp 3-4]: In the improvement of the efficiency of national production, the most important role belongs to further introduction of computers into the sphere of economics. Progress in this area is determined to a great extent by the presence of automatic data processing systems for economics information based on algorithmic languages available to a broad circle of people dealing in the given area.

The automatic data processing system described in this book for the Minsk-22M computer (SAOD) is based on a Russian version of COBOL (Common Business Oriented Language), the business information processing language which is widespread abroad. The given system was developed at the Minsk design office of the plant imeni S. Ordzhonikidze with the participation of the mathematics institute of the Belorussian SSR Academy of Sciences, and it is the first system using COBOL for series-produced Soviet computers in the development of the language and translater of the system the materials from the working group of algorithmic economic data processing languages (GAYaPEI) of the Commission on Multifaceted

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USSR

DUBOVITSKAYA, R. K., et al., Sistema Avtomaticheskoy Obrabotki Dannykh na Baze Yazyka KOBOL, Moscow, Statistika Press, 1971, 280 pp

Cooperation of the Academies of Sciences of the Socialist Countries were used.

The book is devoted to a description of the SAOD system and its components from the point of view of the user. The system consists of writing the program in the initial language, preparing the programs and data for computer input, translation and checkout of the working program during computations by the finished working program and also during special system servicing procedures.

Accordingly, the book contains information required by programmers and computer operators, a description of the equipment for preparing the data, and data required by people responsible for organizing the operation of the SAOD system as a whole. In addition, the book can be useful to developers of programming and data processing systems. It is assumed that the reader is acquainted with the principles of automatic programming and the application of computers in data processing problems.

When using the book as a practical guide, the reader should also be acquainted with the following materials on the software system for the Minsk-22 computer:

1. Software for the Minsk-2 (22) computer in the T mode. No 1. Standard

USSR

DUBOVITSKAYA, R. K., et al., Sistema Avtomaticheskoy Obrabotki Dannykh na Baze Yazyka KOBOL, Moscow, Statistika Press, 1971, 280 pp

Programs Library. Minsk, Mathematics Institute of the Belorussian SSR Academy of Sciences, 1968.

2. Software of the Minsk-2 (22) computer in the T mode. No 3. Symbolic coding system. Minsk. Mathematics Institute of the Belorussian SSR Academy of Sciences, 1969.

The authors consider it necessary to note that the success in using SAOD, just as any modern automatic data processing system, depends to a great extent on the clarity of organization of the operations with respect to its utilization within the framework of the general enterprise control system.

In addition to the authors, the following people participated in the development of the system at various stages: V. I. Gorbatsevich, M. L. Gruzdova, V. A. Doroshek, L. A. Kozyabo, M. Ye. Nemenman, L. I. Panchina, V. N. Pionov, M. S. Presman, V. M. Skripnikova, et al.

The authors express their sincere appreciation to all who were of assistance in preparing this paper for publication, and they will be grateful to the readers and users of the SAOD system for comments, remarks, and suggestions.

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1/2 023 UNCLASSIFIED PROCESSING DATE--20NOV70

TITLE--A STUDY OF THE ANTIMYORELAXANT EFFECT OF CHOLINOPOTENTIATING AGENTS -U-

AUTHOR-(04)-PROZOROVSKIY, V.B., VLADEYEVA, N.V., KHROMOVA, U.N., DUBOVITSKAYA, S.I.

COUNTRY OF INFO--USSR

SOURCE--BYULLETEN' EKSPERIMENTAL'NOY BIOLOGII I MEDITSINY, 1970, VOL 49, NR 6, PP 51-54

DATE PUBLISHED-------70

SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES

TOPIC TAGS--MUSCLE RELAXANT, INHIBITION, CHOLINESTERASE, BRAIN, MUSCLE PHYSIOLOGY

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--3004/0703 STEP NO--UR/0219/70/049/006/0051/0054

CIRC ACCESSION NO--APO131332

UNCLASSIFIED

2/2 023 UNCLASSIFIED PROCESSING DATE--20NOV70

CIRC ACCESSION NO--AP0131302

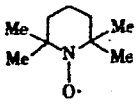
ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE ANTICURARE AND ANTIPARAMIONIC EFFECT OF CHOLINOPOTENTIATING AGENTEN (ARMINE, GALANTAMINE, OXASYL, PROSERINE, PHOSPHACOL, ESERINE) WAS STUDIED IN EXPERIMENTS ON FROGS AND RATS. THE ANTIMYORELAXANT ACTIVITY DID NOT CORRELATE WITH ANTICHOLINESTERASE TO TOTAL CHOLINESTERASE OF FROG MUSCLES AND ACETYLCHOLINESTERASE OF RAT BRAIN. THE MARKEDNESS OF ANTIPARAMIONIC ACTIVITY OF PREPARATIONS IN EXPERIMENTS ON RATS DOES NOT CORRESPOND WITH DIAPHRAGMATIC CHOLINESTERASE INHIBITION CAUSED BY THEM. ANTIMYORELAXANT ACTIVITY IN EXPERIMENTS ON FROGS CLOSELY CORRELATE WITH THE ABILITY OF PREPARATIONS TO SENSITIZE FROG MUSCULAR ABDOMINIS RECTIS TO ACETYLCHOLINE. A CONCLUSION IS MADE THAT ANTICURARE AND, PARTICULARLY, ANTIPARAMIONIC EFFECTS OF CHOLINOPOTENTIATING AGENTS DEPEND NOT ONLY ON CHOLINESTERASE INHIBITION, BUT ALSO UPON THE CHOLINOSENSITIZING ACTION.

FACILITY: LENINGRAD PEDIATRIC MEDICAL INSTITUTE.

UNCLASSIFIED

Acc. Nr. A70100194 Abstracting Service: CHEMICAL ABST. 6-70 Ref. Code 4R0020

111959a **Morphological features of polyformaldehyde studied by a spin probe method.** Stryukov, V. B.; Dubovitskii, A. V.; Rozenberg, B. A.; Enikolopyan, N. S. (Inst. Khim. Fiz., Moscow, USSR). *Dokl. Akad. Nauk SSSR* 1970, 190(3), 642-4 [Phys Chem] (Russ). The EPR spectra of polyformaldehyde (I) sam-



(II)

ples contg. II (used as a spin probe) depend on the distribution of II in I, which in turn is dependent on the type of the mol. packing of I amorphous regions. The spectral differences between I prepd. by the cationic polymn. of trioxane and anionic polymn. of gaseous HCHO, using Ph_3CSbF_6 or Sn stearate, resp., as the catalysts, showed that the former has more compact amorphous regions and it absorbs II slower. CPJR

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REEL/FRAME 19841576

CB 7

USSR

UDC 536.46+662.217

FROLOV, YU. V., DUBOVITSKIY, V. F., KOROTKOV, A. I., KOROSTELEV, V. G., Moscow

"Convective Combustion of Porous Explosives"

Novosibirsk, Fizika goreniya i vzryva, Vol 8, No 3, 1972, pp 368-378

Abstract: A study was made of some of the steps in the development of the process of combustion of porous systems of limited length. The experiment in the development of convective combustion was carried out primarily in a constant-pressure device with a free volume of two liters equipped with a peephole for optical recording of the process, a series of electric leads for the thermocouples and a piezoelectric pressure-sensitive sensor. A mixed condensed stoichiometric system of polystyrene and ammonium perchlorate was used. The general nature of the development of the combustion processes along the length of the porous sample as a function of its length with different porosity is plotted. Under other equal conditions, the general level of the propagation rate of the convective combustion increases as the porosity of the specimen increases. Under the effect of a critical pressure drop it is possible to isolate three characteristic regimes in which the predominant one is: a) the filtration process (the initial segment of the charge); b) the process of development of convective combustion and c) the effect of creating a counter pressure as a result of compression of the filtered gas filling the pores in advance. The presence and

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APPROVED FOR RELEASE: 07/19/2001 CIA-RDP86-00513R002200710019-9"

USSR

FROLOV, YU. V., et al., Fizika goreniya i vzryva, Vol 8, No 3, 1972, pp 368-378

commensurableness of the indicated regimes depends primarily on the length, porosity and physical-chemical properties of the sample and also on the initial pressure drop in the pores and the surrounding volume.

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USSR UDC: 51:155.001.57:612.82

DUBROV, Ya. A.

"On Structural-Functional Analysis of Some Classes of Complex Systems"

V sb. Tekhn. kibernetika (Technical Cybernetics--collection of works), vyp. 15, Kiev, 1970, pp 5-13 (from RZh-Kibernetika, No 7, Jul 71, Abstract No 7V795)

Translation: On the basis of a structural-functional definition of systems, the author classifies these systems. The classification is based on functions ascribed to the vertices of the structure. The following classes are distinguished. 1) class C with immaterial variables for which $f(x_1, \ldots, x_{i-1}, x_i, x_{i+1}, \ldots, x_m) = f(x_1, \ldots, x_{i-1}, x_{i+1}, \ldots, x_m)$ is true; 2) class C with vector functions for which $f(x_1, \ldots, x_m) = f_1(x_1, \ldots, x_m), \ldots, f_n(x_1, \ldots, x_m)$ is true, where m is the number of inputs, and n is the number of outputs of C; 3) switching classes C for which m is greater than the dimensionality of the system; 4) heuristic classes C for which the number of inputs is less than the dimensionality of thefunction of C, i. e. some inputs are unknown indistinct sets; 5) series-parallel classes C with structures and functions obtained by means of operations of the sum and product of

DUBROV, Ya. A., Tekhn. kibernetika, vyp. 15, Kiev, 1970, pp 5-13

structures and functions of subsystems. The author introduces the concept of type equivalent conversion of classes C which transform a class C represented by several vertices and feedback loops to a class C with one vertex and without loops. A graphic representation of type conversions is presented: the direct sum and product of systems, iteration of a system. An illustration of the use of these conversions is presented which is based on analysis of a system of low complexity. An algorithm is considered for analysis of series-parallel systems type (m, 1), i. e. such that their structures are connected trees with only one edge issuing from each vertex. A theorem is proved on the existence of a constructive method of analysis which allows finding the output signal of any (m,1)-system in terms of its input signals and functions of all vertices. The analysis algorithm can be generalized to the case of series-parallel classes C with vector functions. Seven illustrations. A. Doroshenko.

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USSR

UDC: 669.1:538.116

DUBOVKA, G. T., PONYATOVSKIY, Ye. G.

"Concerning the Shift of Curie Points in Iron-Nickel Alloys Under the Effect of Pressure"

Sverdlovsk, Fizika Metallov i Metallovedeniye, Vol 33, No 3, Mar 72, pp 640-642

Abstract: The authors investigate the influence of pressure on the Curie point of 10 nickel-iron alloys containing 28-42 at.% Ni. The Curie points were determined from the temperature dependence of initial permeability within ±3 kelvins. Pressure was measured on a manganin manometer with an accuracy of ±200 bars, and temperature was determined by a chromel-alumel thermocouple. The Curie point was found to be a linear function of pressure.
The authors thank I. L. APTEKAR' for continued interest in the work and for discussing the results of the experiment, and also A. I. ZAKHAROV for furnishing the specimens.

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1/2 045 UNCLASSIFIED PROCESSING DATE--11DEC70

TITLE--INFLUENCE OF INJECTOR CHARACTERISTICS, TEMPERATURE, AND THE FUEL'S PHYSICOCHEMICAL PROPERTIES ON THE COMBUSTION EFFICIENCY IN THE

AUTHOR-(02)-DUBOVKIN, N.F., GORSHENIN, A.P.

D

COUNTRY OF INFO--USSR

SOURCE--AVIATSIONNAIA TEKHNIKA, VOL. 13, NO. 1, 1970, P. 97-104

DATE PUBLISHED--------70

SUBJECT AREAS--PROPULSION AND FUELS

TOPIC TAGS--GAS TURBINE, GRAPHIC TECHNIQUE, CHEMICAL COMPOSITION, COMBUSTION CHAMBER, THERMAL EFFECT, PHYSICAL CHEMISTRY PROPERTY, FUEL CONSUMPTION, FUEL INJECTOR, FUEL EFFICIENCY

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY FICHE NO----FD70/005060/B12 STEP NO--UR/0147/70/013/001/0097/0104

CIRC ACCESSION NO--AP0144340

UNCLASSIFIED

2/2 045 UNCLASSIFIED PROCESSING DATE--11DEC70

CIRC ACCESSION NO--AP0144340

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. STUDY OF THE COMBUSTION EFFICIENCY IN GAS TURBINE ENGINE CHAMBERS AS A FUNCTION OF INJECTION QUALITY, TEMPERATURE, VAPORIZATION, VISCOSITY, CHEMICAL COMPOSITION, AND OTHER FUEL CHARACTERISTICS. THE STUDY IS BASED MAINLY ON EXPERIMENTAL DATA OBTAINED WITH FULL SCALE TURBINE ENGINES. GRAPHS SHOW FUEL COMBUSTION EFFICIENCY PLOTTED AGAINST THE SPECIFIC SURFACE AREA OF FUEL DROPLETS, THE EXCESS AIR RATIO, SINGLE NOZZLE AND BYPASS FUEL INJECTION SYSTEMS, AND FUEL TEMPERATURE. IT IS DEMONSTRATED THAT COMBUSTION EFFICIENCY DEPNDS MAINLY ON THE FRACTIONAL COMPOSITION, DEGREE OF ATOMIZATION, AND FUEL VAPORIZATION. THESE FACTORS CANNOT BE NEGLECTED, PARTICULARLY IN ADVERSE CONDITIONS OF LOW PRESSURE AND HIGH FLOW RATES IN THE CHAMB ER. IN PRACTICE, COMBUSTION EFFICIENCY CAN BE IMPROVED AND DIFFERENCES IN FUEL PROPERTIES CAN BE MINIMIZED BY VARYING THE INJECTION AND ATOMIZATION.

UNCLASSIFIED

USSR

UDC 539.172.3

DUBOVOY, E. I. and NADTOCHIY, V. G.

"On the Fine Structure of Gigantic Resonance in ^{58}Ni"

Moscow, Izvestiya Akademii Nauk SSSR -- Seriya Fizicheskaya, Vol XXXV, No 8, 1971, pp 1742-1743

Abstract: The fine resonance structure of a photoneutron cross section in a ^{58}Ni nucleus is analyzed in the present article by means of the technique of Feynman diagrams. The article contains a drawing of the type of triangular diagrams used. The diagrams illustrate three virtual processes: the disintegration of $^{58}Ni \rightarrow ^{57}Ni + n$, excitation of the ^{57}Ni nucleus by a photon, and inelastic scattering of the neutron in $^{57*}Ni$ along with transferal of excitation to the neutron. These diagrams specify the existence of extrema in the cross section, the positions of which coincide with the thresholds of the $(\gamma\ n)$-reactions in ^{58}Ni with excitation of the residual nucleus of ^{57}Ni. Within the limits of experimental error, 200 kilo electron volts, all resonances except for 18.6 million electron volts were found to coincide in position with the extreme. However, the resonance structure of the cross section cannot be unequivocally identified with these extrema because resonances could also be caused by the interaction in a finite state of a ^{57}Ni nucleus and a neutron rather than a photon.

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Acc. Nr: AP0038022 Ref. Code: UR 0056

PRIMARY SOURCE: Zhurnal Eksperimental'noy i Teoreticheskoy Fiziki, 1970, Vol 58, Nr 1, pp 14-25

TURBULENT HEATING OF IONS IN A SKIN HIGH FREQUENCY DISCHARGE

Dubovoy, L. V.; Ivanov, B. A; Chernobrovin, V. I.

The ion energy spectrum in a high frequency discharge with a skin current is measured by corpuscular diagnostics techniques. The shape of the spectrum indicates the existence of two groups of ions in the experiments. The main group has a temperature $T \sim 50$ eV and a smaller group possesses a temperature $T \sim 700$ eV, the mean electron temperature in the plasma being ~ 100 eV. Both ion groups can be described by a Maxwellian energy distribution function. An analysis of the results shows that the plasma durig the inital discharge stage is collisionless and heating of electrons as well as ions is of a turbulent nature. The results of the experiments are in satisfactory agreement with the theory which predicts plasma heating due to excitation of ion-acoustic microinstability in the skin layer region.

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REEL/FRAME 19731063

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1/2 018 UNCLASSIFIED PROCESSING DATE--27NOV70
TITLE--INVESTIGATION OF HIGH FREQUENCY STABILIZATION OF THE KADOMTSEV, NEDOSPASOV INSTABILITY IN AN ELECTRON HOLE PLASMA -U-
AUTHOR-(03)-VLADIMIROV, V.V., DUBOVOY, L.V., SHANSKIY, V.F.

COUNTRY OF INFO--USSR

SOURCE--ZHURNAL EKSPERIMENTAL'NOY I TEORETICHESKOY FIZIKI, 1970, VOL 58, NR 5, PP 1580-1585
DATE PUBLISHED--------70

SUBJECT AREAS--PHYSICS

TOPIC TAGS--ELECTRON HOLE, PLASMA INSTABILITY, GERMANIUM

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--3002/0012 STEP NO--UR/0056/70/058/005/1580/1585

CIRC ACCESSION NO--AP0127662
UNCLASSIFIED

2/2 018 UNCLASSIFIED PROCESSING DATE--27NOV70

CIRC ACCESSION NO--AP0127662

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. CONDITIONS ARE DERIVED FOR HIGH FREQUENCY STABILIZATION OF HELICAL INSTABILITY OF A CURRENT IN A SEMICONDUCTOR ELECTRON HOLE PLASMA. THE RESULTS OF THE CALCULATIONS ARE COMPARED WITH THE RESULTS OF EXPERIMENTS ON GERMANIUM. IT IS SHOWN THAT THE CALCULATION PROCEDURE PROPOSED PERMITS ONE TO EXPLAIN THE MAIN REGULARITIES OBSERVED IN THE EXPERIMENTS. FACILITY: INSTITUT ELEKTROFIZICHESKOY APPARATURY IM. D. V. YEFREMOVA.

UNCLASSIFIED

1/2 042 UNCLASSIFIED PROCESSING DATE--23OCT70

TITLE--TURBULENT HEATING OF A PLASMA IN A DISCHARGE WITH A SKIN CURRENT -U-

AUTHOR-(02)-DUBOVOY, L.V., FEDYAKOVA, V.P.

D

COUNTRY OF INFO--USSR

SOURCE--ZHURNAL EKSPERIMENTAL'NOY I TEORETICHESKOY FIZIKI, 1970, VOL 58, NR 4, PP 1168-1177

DATE PUBLISHED-------70

SUBJECT AREAS--PHYSICS

TOPIC TAGS--HIGH FREQUENCY DISCHARGE, PLASMA HEATING, TURBULENT PLASMA, SKIN EFFECT, THERMODYNAMIC EFFICIENCY

CONTROL MARKING--NO RESTRICTIONS

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ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. RESULTS OF AN EXPERIMENTAL INVESTIGATION OF THE EFFICIENCY OF HEATING OF A PLASMA IN A HIGH FREQUENCY DISCHARGE WITH A SKIN CURRENT IN THE TURBULENT STATE ARE PRESENTED. A SCHEME FOR CALCULATING THE HEATING EFFICIENCY OF A PLASMA IS PROPOSED FOR THE CASE WHEN ION SOUND INSTABILITY IS EXCITED IN THE REGION OF THE SKIN LAYER; DISCHARGE CURRENT DISSIPATION IN THE PLASMA IN THE TURBULENT STATE AND TRANSFER PHENOMENA OCCURRING PERPENDICULAR TO THE EXTERNAL FIELD AND ACCOMPANIED BY DISSIPATION OF THE HIGH FREQUENCY FIELD ENERGY ARE TAKEN INTO ACCOUNT. THE APPLICABILITY OF THE CONCEPTS DEVELOPED IN WORK ON HIGH FREQUENCY DISCHARGES TO TURBULENT HEATING OF A PLASMA BY SINGLE SHORT DURATION CURRENT PULSES IS DISCUSSED.
FACILITY: INST. ELEKTROFIZICHESKOY APPARATURY IM. D. V. YEFREMOVA.

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USSR

UDC: 537.74

GRUZDEV, S. V., DUBOVOY, N. D., KARPOV, R. G., MATYUKHIN, Yu. D., OSOKIN, V. I., and YUDINA, V. P.

"UHF Power Meter With Automatic Selection of the Measurement Limit"

Leningrad, Priborostroyeniye, No 1, 1972, pp 13-17

Abstract: Most UHF power meters of the self-balancing type, in which some of the measuring operations are automatic, have a manually operated method of setting the measurement limit. The authors, members of the Ryazan Radio Engineering Institute, have devised a method of automating that adjustment as well. Where the measurements are based on the method of replacing the UHF power by the varying frequency pulse power, and especially in digital readout instruments, this can be done fairly easily, as the authors demonstrate. A block diagram of the device is given together with an explanation of its operation. The essence of the system is a power-frequency converter for representing the output information in frequency form.

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USSR

UDC: 621.317.37

OSOKIN, V. I., DUBOVOY, N. D., CHIBRIKOV, S. I., KARPOV, R. G., GRUZDEV, S.V.

"A Microwave Pulse Power Meter"

Moscow, Otkrytiya, Izobreteniya, Promyshlennyye Obraztsy, Tovarnyye Znaki, No 9, Mar 72, Author's Certificate No 331325, Division G, filed 23 Mar 70, published 7 Mar 72, p 135

Translation: This Author's Certificate introduces a microwave pulse power meter which contains a bolometric bridge, a detector and an amplifier. As a distinguishing feature of the patent, measurement accuracy is improved by feeding the output signal simultaneously to the inputs of a slave multivibrator and a slave sawtooth voltage oscillator. The output of the sawtooth voltage oscillator is connected to the input of a memory unit. The output signal from the memory unit is sent to one of the inputs of a two-coil ratiometer, and the signal from the output of the bolometric bridge is sent to the second input of the two-coil ratiometer through a second memory unit. A signal is sent to the input of the bolometric bridge through a high-frequency switch from the output of a flip-flop. A signal from the output of the slave multivibrator is sent to one input of the flip-flop

USOKIN, V. I. et al., USSR Author's Certificate No 331325

through a pulse duration shaper, a frequency divider and a delay line. The second input of the flip-flop is connected to the output of the pulse duration shaper.

USSR UDC: 621.317.784.023(088.8)

KARPOV, R. G., GRUZDEV, S. V., OSOKIN, V. I., DUBOVOY, N. D., KROTENKO, V. I., MAKSIMOV, Yu. N.

"An SHF Power Meter"

USSR Author's Certificate No 263006, filed 30 Apr 68, published 8 Jun 70 (from RZh-Radiotekhnika, No 6, Jun 71, Abstract No 6A277 P)

Translation: This Author's Certificate introduces an SHF power meter which contains a self-balancing thermistor bridge with a selective amplifier in the self-balancing circuit, and a heater for the thermistor. As a distinguishing feature of the patent, measurement precision is improved by using a high-frequency oscillator as the thermistor heating source.

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USSR UDC: 621.317.784.023(088.8)

OSOKIN, V. I., DUBOVOY, N. D., KARPOV, R. G., GRUZDEV, S. V., CHIBRIKOV, S. I.

"An Automatic SHF Power Meter"

USSR Author's Certificate No 268519, filed 18 Nov 68, published 14 Aug 70 (from RZh-Radiotekhnika, No 6, Jun 71, Abstract No 6A275 P)

Translation: This Author's Certificate introduces an automatic SHF power meter with double comparison which contains an automatically balancing thermistor bridge, a microwave cutoff switch and a power indication circuit. The proposed meter differs from conventional units in the fact that the rectifier input is connected to the bridge output, and the rectifier output is connected to one of the comparator inputs; the other comparator input is connected to the output of an integrator, and the comparator output is connected to the inputs of flip-flops; the output of a sawtooth voltage generator is connected to a thermistor and to a meter, resulting in increased speed and accuracy of measurement over a wide temperature range. E. L.

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UDC: 621.317.784.023(088.8)

GRUZDEV, S. V., DUBOVOY, N. D., KARPOV, R. G., OSOKIN, V. I., CHIBRIKOV, S. I.

"A Pulse-Frequency SHF Power Meter"

USSR Author's Certificate No 270887, filed 8 Dec 68, published 24 Aug 70 (from RZh-Radiotekhnika, No 2, Feb 71, Abstract No 2A334 P)

Translation: This Author's Certificate introduces a meter which contains a bolometric bridge, pulse amplifier, amplitude detector, variable-frequency oscillator and a subtraction device. As a distinguishing feature of the patent, a prf divider for the VFO pulse output is connected in the feedback circuit of the bridge resulting in an increase in meter sensitivity proportional to the division coefficient of the divider. E. L.

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USSR

UDC: 621.317.78.023(088.8)

GRUZDEV, S. V., DUBOVOY, N. D., KARPOV, R. G., OSOKIN, V. I., CHIBRIKOV, S. I.

"An SHF Power Meter"

USSR Author's Certificate No 270886, filed 8 Dec 68, published 24 Aug 70 (from RZh-Radiotekhnika, No 2, Feb 71, Abstract No 2A337 P)

Translation: An SHF power meter is proposed which contains a thermistor bridge, a selective amplifier and a power indication circuit. In order to improve measurement accuracy, provision is made in the proposed meter for automatic compensation of the error in comparison of the measured power with the substituting power increment. This is accomplished by using a storage integrator, a comparator and a sawtooth voltage generator to which a pointer indicator is connected at the instant when the sawtooth voltage reaches the balance level. E. L.

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USSR

UDC: 621.317.78

GRUZDEV, S. V., DUBOVOY, N. D., KARPOV, R. G., OSOKIN, V. I., CHIBRIKOV, S. I.

"An SHF Power Meter"

USSR Author's Certificate No 270888, filed 8 Dec 68, published 24 Aug 70 (from RZh-Radiotekhnika, No 2, Feb 71, Abstract No 2A329)

Translation: An SHF power meter is proposed which contains a thermistor bridge, amplifier, variable-frequency oscillator and sensitivity control circuit. As a distinguishing feature of the patent, the proposed meter utilizes automatic sensitivity control which is effected by varying the frequency of the substituting voltage. This frequency is compared with that of the reference oscillations, and the difference between these frequencies is presented in digital form. The ultimate result is an increase in measurement precision. E. L.

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USSR

UDC 621.317.78(088.8)

GRUZLEV, S. G., DUBOVOY, N. D., KARPOV, R. G., OSOKIN, V. I.

"Super-High Frequency Power Meter"

USSR Author's Certificate No 275184, Filed 21 Jun 68, Published 14 Oct 70 (from RZh-Radiotekhnika, No 4, Apr 71, Abstract No 4A276P)

Translation: A super-high frequency power meter containing a self-balancing bolometric bridge with an oscillator in the autobalancing circuit is proposed. A pulse oscillator with constant amplitude and regulatable length, the modulation characteristic of which depends on the peak amplitude of the control pulses was used as the oscillator to improve the measurement accuracy.

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USSR

UDC 621.317.784.023(088.8)

KARPOV, R. G., GRUZDEV, S. V., FROLIN, M. I., OSOKIN, V. I., DUBOVOY, N. D.

"Superhigh Frequency Power Meter"

USSR Author's Certificate No 272400, Filed 29 Apr 68, Published 22 Sep 70 (from RZh-Radiotekhnika, No 4, Apr 71, Abstract No 4A283P)

Translation: A superhigh frequency power meter comprising a self-balancing bolometric bridge with an oscillator in the autobalancing circuit is proposed. The proposed meter is distinguished by the fact that in order to improve the meter sensitivity a pulse oscillator with constant amplitude and regulatable repetition rate is used as the oscillator. Its modulation characteristic depends on the peak value of the control pulse amplitude.

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USSR

UDC 621.317.78

OSOKIN, V. I., GRUZDEV, S. V., DUBOVOY, N. D., KARPOV, R. G.

"Automatic Device for Measuring Low Levels of Continuous Superhigh-Frequency Power"

Tr. Ryazansk. radiotekhn. in-ta (Works of Ryazan Radiotechnical Institute), 1970, vyp. 23, pp 188-196 (from RZh-Radiotekhnika, No 8, Aug 70, Abstract No 8A369)

Translation: A significant deficiency of self-balancing bridges as applied to measuring superhigh-frequency power is the high initial signal level at their output before supplying the measured power as a result of which the relative variation of this signal on arrival of the measured power at the bolometer is insignificant. A functional diagram is presented and analyzed, the special structure of which permits elimination of the indicated deficiencies and, in addition to this, automation of the measurement process, an increase in speed and an increase in accuracy. The instrument constructed by the described scheme, insures automatic measurement of the power in the 30 microwatt to 3 milliwatt range with accuracy to 5%. The measurement time for maximum power is less than or equal to 3 seconds.

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USSR

UDC 621.317.78

GRUZDEV, S. V., DUBOVOY, N. D., KARPOV, R. G., OSOKIN, V. I.

"High-Speed Superhigh-Frequency Power Meter"

Tr. Ryazansk. radiotekhn. in-ta (Works of Ryazan Radiotechnical Institute), 1970, vyp. 23, pp 174-187 (from RZh-Radiotekhnika, No 8, Aug 70, Abstract No 8A376)

Translation: This article contains a description of an instrument which is an astatic tracking system constructed on the basis of a selective amplifier encompassed by positive feedback via a bolometric bridge. The block diagram of this meter and the time diagrams explaining its operation are presented. A short theory is presented. The possibility of applying the device on the indicated principle for stabilization of the generator power is noted. The bibliography has three entries.

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USSR

UDC 621.317.78

DUBOVOY, N. D., GRUZDEV, S. V., KARPOV, R. G. OSOKIN, V. I.

"Superhigh-Frequency Power Meter with Time-Pulse Conversion"

Obmen opytom v radioprom-sti (Exchange of Experience in the Radio Industry) vyp. 2, Moscow, 1970, pp 47-48 (from RZh-Radiotekhnika, No 8, Aug 70, Abstract No 8A373)

Translation: This article contains a block diagram and a description of the operating principle of a high-speed tracking time-pulse superhigh-frequency power meter. The meter includes a power amplifier, a controlled multivibrator, a pulse amplifier, a shaping circuit, and a delay line. The multivibrator is executed according to the schematic permitting control of the generated constant voltage pulse length. Variation of the pulse length can serve as a measure of the superhigh-frequency power. The pulse feed of the bridge circuit greatly improves the sensitivity of the bridge by comparison with constant or variable voltage feed.

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UDC 621.317.328

GRUZDEV, S. V., DUBOVOY, N. D., KARPOV, R. G., OSOKIN, V. I., CHIBRIKOV, S. I.

"Superhigh-Frequency Power Meter"

Moscow, Otkrytiya, Izobreteniya, Promyshlennyye Obraztsy, Tovarnyye Znaki, No 17, 12 May 70, p 56, Patent No 270886, Filed 8 Dec 68

Translation: This Author's Certificate introduces a superhigh-frequency power meter containing a thermistor bridge, a selective amplifier and a power indicating circuit. In order to increase the measurement accuracy, in the power indicating circuit the output of the balancing oscillation rectifier is connected to a comparator and an integrator, the integrator output is connected to the second input of the comparator, and the output of the comparator is connected via the control circuit to the saw oscillator the output of which is connected to the thermistor.

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